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EXAMINER
BURLESON, MICHAEL L

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/796,879	YUAN ET AL.
	Examiner	Art Unit	
	Michael Burleson	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-24_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-24_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _04/26/04_.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

Information Disclosure Statement

1.   The information disclosure statement (IDS) was submitted on 04/26/2004. The

submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the

information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-23 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

Regarding claim 1, The computer-implemented process is merely a set of

instructions per se. Since the image processing program is merely a set of instructions

not embodied on a computer readable medium to realize the computer program

functionality, the claimed subject matter is non-statutory.

Regarding claim 13, The computer program claimed is not embodied on a

computer readable medium to realize the computer program functionality; the claimed

subject matter is non-statutory.

It is inherent that claims 2-12 and 14-23 are also rejected.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1, 3-5, 7-9, 13-19 and 21-24 are rejected under 35 U.S.C. 102(b) as

being anticipated by Lin US 5812286.

Regarding claim 1, Lin teaches a computer-implemented (figure 1) process for

correcting the color of improperly colored pixels of an image having multi-level red (R),

green (G), and blue (B) color channels, comprising using a computer to perform the

following process actions (column 1, line 48-50): computing a histogram of the color

levels of the image pixels for each of the color channels (figure 4); computing the

lowermost and uppermost color levels for each of the color channels that are consistent

with the overall distribution of color levels for that channel (column 2,lines 30-32);

computing the per channel average color level for a group of the brightest pixels

(column 2, lines 36-38); comparing the color levels of the G and R color channel pair

and the G and B color channel pair to determine if the color levels in each compared

pair is balanced (column 2, lines46-65); and whenever the color levels of either

compared color channel pair are determined not to be balanced, linearly expanding the

dynamic range of the color channel with the narrower range to match the channel with

the wider dynamic range to a desired degree for each of said channel pairs found to be

out of balance (column 2, lines 60-65).

Regarding claim 3, Lin teaches wherein the process action of computing the per channel average color level for a group of the brightest pixels, comprises the actions of: computing a histogram of the luminance (Y) channel of the pixels in the image; computing the average color associated with each color level as a vector having an element for each color channel that represents the percentage of the number of pixels having that color channel exhibiting a particular Y intensity level as compared to all the pixels of any color channel exhibiting the Y intensity level under consideration; computing the sum of the average color of a color level multiplied by the number of Y channel pixels associated with that level for each level within a particular range representing the group of the brightest pixels, divided by the sum of the number of Y channel pixels for each level within the same range, wherein the particular range is computed as being between the uppermost level of the Y channel that is still consistent with the overall distribution of levels for that channel and the maximum level possible for that channel; designating the resulting vector as the average color level vector for said group of the brightest pixels (column 2, lines 66-column 3, lines 45).

Regarding claim 4, Lin teaches wherein the process action of computing the particular level range representing the group of the brightest pixels as being between the uppermost level of the Y channel that is still consistent with the overall distribution of levels for that channel and the maximum level possible for that channel, comprises the actions of computing the uppermost level for the Y channel as the level wherein: the sum of the number of pixels exhibiting a level within a

prescribed range of levels extending from the unknown uppermost level, plus

one level, to the highest level possible, is less than the total number of pixels in the

image multiplied by a tolerance factor designed to eliminate the impact of noise on the

pixels values; and the sum of the number of pixels exhibiting a level within a

prescribed range of levels extending from the unknown uppermost level to the

highest level possible is greater than or equal to the total number of pixels in the image

multiplied by the tolerance factor (column 2, lines 46-65).

Regarding claim 5, Lin teaches wherein the process action of determining

if the color levels of a compared color channel pair are balanced, comprises the

actions of: ascertaining if the dynamic color level ranges of the channel pair match

within a prescribed tolerance; and whenever the dynamic color level ranges of the

channel pair do not match within the prescribed tolerance, designating the color levels

of the color channel pair to be out of balance (column 2, lines 53-65).

Regarding claim 7, Lin teaches wherein the process action of linearly expanding

the dynamic range of the color channel with the narrower range to match the channel

with the wider dynamic range to a desired degree, comprises an action of varying the

degree to which the color channel with the narrower range is made to match the

channel with the wider dynamic range between expanding the channel with the

narrower range to match the full range of the channel with the wider range to no

expansion at all, depending on the value of a safeness parameter (column 3, lines 18-

45).

Regarding claim 8, Lin teaches wherein the safeness parameter is

prescribed (column 3, lines 40-42).

Regarding claim 9, Lin teaches wherein the safeness parameter is user-

specified (column 3, lines 40-42).

Regarding claim 13, the steps of process claim 1 performs all of the steps of

system claim 13. Thus, claim 13 is rejected for the same reasons discussed in the

rejection of claim 1.

Regarding claim 14, Lin teaches program modules for: linearly expanding the

dynamic range of the intensity levels of the image pixels so as to match the full dynamic

intensity range available to a desired degree; determining whether the linearly

expanded intensity levels of the image pixels are evenly distributed; and whenever the

linearly expanded intensity levels of the pixels are determined not to be evenly

distributed, applying a gamma correction factor to the linearly expanded intensity level

of each pixel in the image to produce a corrected intensity value for each pixel and

thereby improve the exposure of improperly exposed pixels of the image (column 3,

lines 18-45).

Regarding claim 15, Lin teaches wherein the program module for linearly

expanding the dynamic range of the intensity levels of the image pixels so as to match

the full dynamic intensity range available to a desired degree, comprises a sub-module

for varying the degree to which intensity levels of the image pixels are made to match

the full dynamic intensity range available between expanding the dynamic range of the

intensity levels to match the full dynamic intensity range available to no expansion at all,

depending on the value of an exposure safeness parameter (column 3, lines 18-45).

Regarding claim 16, Lin teaches wherein the exposure safeness parameter is

prescribed (column 3, lines 40-42).

Regarding claim 17, Lin teaches wherein the exposure safeness parameter is

user-specified (column 3, lines 40-42).

Regarding claim 18, Lin teaches wherein the program module for linearly

expanding the dynamic range of the intensity levels of the image pixels, comprises sub-

module for: computing a histogram of the intensity levels of the image pixels; computing

the lowermost and uppermost intensity levels that are consistent with the overall

distribution of intensity levels in the image; computing new lowermost and uppermost

intensity levels that span the full dynamic intensity range available to a desired degree,

and employing the originally computed lowermost and uppermost intensity levels and

the new lowermost and uppermost intensity levels to establish a linear intensity

correction transform that maps the original intensity level of each pixel in the image to a

linearly expanded intensity level; applying the linear intensity correction transform to

each pixel of the image (column 3, lines 2-26).

Regarding claim 19, Lin teaches a process action of, whenever the application of a

gamma correction factor to the linearly expanded intensity level of each pixel in the

image results in an overall brightening of the image, boosting the color saturation levels

of each color channel of each pixel of the image by a desired amount (column 3, lines

18-47).

Regarding claim 21, the steps of process claim 7 performs all of the steps of system claim 21. Thus, claim 21 is rejected for the same reasons discussed in the rejection of claim 7.

Regarding claim 22, the steps of process claim 8 performs all of the steps of system claim 22. Thus, claim 22 is rejected for the same reasons discussed in the rejection of claim 8.

Regarding claim 23, the steps of process claim 9 performs all of the steps of system claim 23. Thus, claim 23 is rejected for the same reasons discussed in the rejection of claim 9.

Regarding claim 24, the steps of process claim 1 performs all of the steps of system claim 24. Thus, claim 24 is rejected for the same reasons discussed in the rejection of claim 1.

Allowable Subject Matter

3. Claims 2, 6, 10-12 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

the IOI rejection is overcome and *KAW*

Conclusion

Any inquiry concerning this communication should be directed to Michael Burleson whose telephone number is (571) 272-7460 and fax number is (571) 273-7460. The examiner can normally be reached Monday thru Friday from 8:00 a.m. – 4:30p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Twyler Haskins can be reached at (571) 272-7406

KfuWilliams

KIMBERLY WILLIAMS
PRIMARY PATENT EXAMINER

Michael Burleson
Patent Examiner
Art Unit 2626

Mlb
January 6, 2008